

25

**PATENT**

Attorney Docket No.: A-70608-7/DJB

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

CRANDALL et al.

Serial No. 10/007,657

Filed: November 13, 2001

For: **MICROBIOCIDAL AND PESTICIDAL  
AROMATIC ALDEHYDES**



Examiner: NOT YET ASSIGNED

Group Art Unit: 1617

CERTIFICATE OF MAILING

I hereby certify that this correspondence, including listed enclosures, is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 on:

Dated: March 29, 2002

Signed: Monica E. Carlos  
Monica E. Carlos

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

This Preliminary Amendment is being submitted in reply to the Office Communication, dated January 30, 2002. The Commissioner is authorized to charge any fees, including extension fees, which may be required, or credit any overpayment to Deposit Account No. 06-1300 (Our Order No. A-70608-7/DJB).

Prior to examination, please amend the above-referenced patent application as follows.

**IN THE SPECIFICATION:**

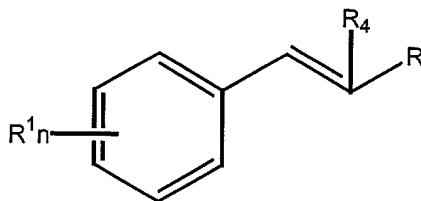
Please insert Figure 1, Figure 2 and Figure 3 immediately following the Abstract on p. 104.

Serial No.: 10/007,657  
Filed: November 13, 2001

**IN THE CLAIMS:**

Please cancel claims 1, 3-5, 9-14, 16-21, without prejudice or disclaimer.

2. (Amended) A method for providing a susceptible plant with sustained resistance to pathological microorganisms, said method comprising:
- administering to said plant a nonphytotoxic composition comprising at least one aromatic compound having the formula



wherein R represents  $-CHO$ ,  $-CH_2OH$ ,  $-COOH$ , or  $-COOR_5$ ; n is an integer from 0 to 3; each  $R^1$  represents  $-OH$ , or an organic substituent containing from 1 to 10 carbon atoms and from 0 to 5 heteroatoms, wherein the total number of carbon and heteroatoms in all  $R^1$  substituents of said compound is no more than 15; and  $R_4$  represents  $-H$  or an organic constituent containing from 1 to 10 carbon atoms; and  $R_5$  represent an organic substituent containing from 1 to 10 carbon atoms and from 0 to 5 heteroatoms.

6. (Amended) The method according to Claim 2, wherein said aromatic compound is one or more aromatic aldehydes selected from the group consisting of cinnamic aldehyde, alpha-hexyl cinnamic aldehyde,  $\alpha$ -amyl cinnamic aldehyde, and coniferyl aldehyde.
7. The method according to Claim 6, wherein said aromatic aldehyde is microencapsulated in a polymer.
8. The method according to Claim 7, wherein said polymer is beeswax or carnauba wax.

Serial No.: 10/007,657  
Filed: November 13, 2001

15. (Amended) The method according to Claim 2, wherein said composition comprises a surfactant.

The following claims are new:

22. (New) The method according to claim 7, wherein said pathological microorganisms are selected from the group consisting of soil-borne pathogens.
23. (New) The method according to claim 7, wherein said pathological microorganisms are selected from the group consisting of thrips, aphids, spider mites, arachnids, nematodes, and leafhoppers.
24. (New) The method according to claim 7, wherein said administering to said plant consists of application by foliar spray.
25. (New) The method according to Claim 15 wherein said surfactant is Tween 80 or saponin.
26. (New) A method for providing a susceptible plant with sustained resistance to pathological microorganisms, said method comprising:  
administering to said plant a nonphytotoxic composition comprising one or more aromatic aldehydes selected from the group consisting of cinnamic aldehyde, alpha-hexyl cinnamic aldehyde,  $\alpha$ -amyl cinnamic aldehyde, and coniferyl aldehyde, wherein said composition is free of antioxidants other than said at one or more aldehyde.
27. (New) The method according to Claim 26, wherein said aromatic aldehyde is microencapsulated in a polymer.
28. (New) The method according to Claim 26, wherein said polymer is beeswax or carnauba wax.

Serial No.: 10/007,657  
Filed: November 13, 2001

29. (New) The method according to Claim 26, wherein said pathological organisms are selected from the group consisting of aphids, thrips, spider mites, arachnids, nematodes, and leafhoppers.
30. (New) The method according to Claim 26, wherein said green plant is selected from the group consisting of a rose, a grape, a tomato, and a bell pepper.
31. (New) The method according to Claim 26, wherein said composition further comprises a surfactant.
32. (New) The method according to Claim 31 wherein said surfactant is Tween 80 or saponin.
33. (New) The method according to Claim 26, wherein said composition further comprises a salt of a polyprotic acid.
34. (New) The method according to Claim 33, wherein said salt of a polyprotic acid is sodium bicarbonate.

#### REMARKS

Claims 1, 3-5, 9-14, 16-21 have been canceled without prejudice or disclaimer. Claims 2, 6, and 15 have been amended. New claims 22-34 have been added. A copy of the changes to the claims can be found on the page marked "Version with Markings to Show Changes." (Appendix A)

A clean copy of the pending claims are reproduced in Appendix B attached hereto.

#### Drawings

Applicants inadvertently omitted drawing Figures 1, 2, and 3 from the filing of this continuation application. Applicants have therefore amended the specification to include Figures 1, 2 and 3. Applicants submit that the figures do not introduce new matter. Support for Figure 1 and

Serial No.: 10/007,657  
Filed: November 13, 2001

Figure 2 is found at page 88, lines 5-19 of the specification. Support for Figure 3 is found at page 93, lines 8-21.

This application is a 37 C.F.R. 1.53(b) continuation of USSN 09/418,676, which was a continuation-in-part of USSN 09/155,289. Applicants note that the specification, as originally filed in this continuation application, incorporates by reference the disclosure of USSN 09/155,289. The omitted drawings are part of the disclosure of USSN 09/155,289. Therefore, addition of the drawings to the specification by the preliminary amendment is appropriate. *See*, MPEP 201.06(c). The drawings were not necessary to understand the invention, as the claims as originally filed contained at least one method claim. *See*, MPEP 601.01(f).

As no new matter has been added in this continuation application, and the omitted drawings are not necessary to understand the invention, a newly executed Declaration is not required.

Please direct any calls in connection with this application to the undersigned at (415) 781-1989.

Respectfully submitted,

FLEHR HOHBACH TEST  
ALBRITTON & HERBERT LLP

Dated: 3/28/02



David J. Brezner  
Reg. No. 24,774

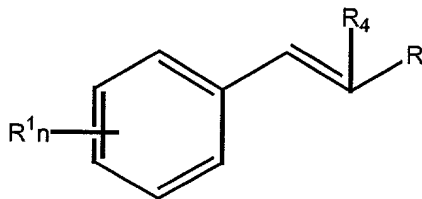
Four Embarcadero Center  
Suite 3400  
San Francisco, CA 94111-4187  
Telephone: (415) 781-1989

Appendix A

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Deleted) A method for providing a susceptible plant with increased resistance to pathological microorganisms, said method comprising:  
  
administering to said plant a nonphytotoxic composition comprising an agent which increases accumulation of aromatic aldehydes in said plant or increases cinnamic acid in said plant, whereby at least one of growth and viability of a pathological microorganism which colonizes a surface or a part of a plant is impaired.
2. (Amended) [The] A method [according to Claim 1,] for providing a susceptible plant with sustained resistance to pathological microorganisms, said method comprising:  
  
administering to said plant a nonphytotoxic composition comprising [wherein said agent comprises] at least one aromatic compound having the formula



wherein R represents -CHO, -CH₂OH, -COOH, or -COOR₅; n is an integer from 0 to 3; each R¹ represents -OH, or an organic substituent containing from 1 to 10 carbon atoms and from 0 to 5 heteroatoms, wherein the total number of carbon and heteroatoms in all R¹ substituents of said compound is no more than 15; and R₄ represents -H or an organic constituent

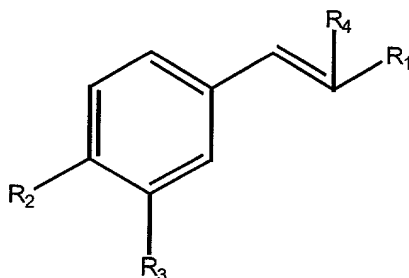
Serial No.: 10/007,657  
Filed: November 13, 2001

containing from 1 to 10 carbon atoms; and R<sub>5</sub> represent an organic substituent containing from 1 to 10 carbon atoms and from 0 to 5 heteroatoms.

3. (Deleted) The method according to Claim 1, wherein said administering is transforming said plant with a composition comprising a vector containing a nucleotide sequence encoding said agent, and wherein expression of said nucleotide sequence is controlled by a promoter function in said plant.
4. (Deleted) The method according to Claim 3, wherein said nucleotide sequence is a DNA sequence.
5. (Deleted) The method according to Claim 3, wherein said nucleotide sequence is heterologous to said plant.
6. (Amended) The method according to Claim 2, wherein said aromatic compound is one or more aromatic aldehydes selected from the group consisting of cinnamic aldehyde, alpha-hexyl cinnamic aldehyde, α-amyl cinnamic aldehyde, and coniferyl aldehyde.
7. The method according to Claim 6, wherein said aromatic aldehyde is microencapsulated in a polymer.
8. The method according to Claim 7, wherein said polymer is beeswax or carnauba wax.
9. (Deleted) The method according to Claim 2, wherein said agent comprises a balsam.
10. (Deleted) The method according to Claim 9, wherein said balsam is derived from a *Liquidambar* tree.
11. (Deleted) The method according to Claim 10, wherein said *Liquidambar* tree is *Liquidambar orientalis* Miller or *Liquidambar sytraciflua*.

Serial No.: 10/007,657  
Filed: November 13, 2001

12. (Deleted) The method according to Claim 9, wherein said agent further comprises one or both of cinnamic aldehyde and alpha-hexyl cinnamic aldehyde.
13. (Deleted) A method for controlling growth of pathological organisms on a plant whereby the plant surface is provided with a nonphytotoxic composition comprising a balsam.
14. (Deleted) The method according to Claim 13, wherein said pathological organisms are aphids.
15. (Amended) The method according to Claim [13 or 14] 2, wherein said composition comprises a surfactant.
16. (Deleted) The method according to Claims 13-15, wherein said composition further comprises one or more aromatic aldehydes having the formula



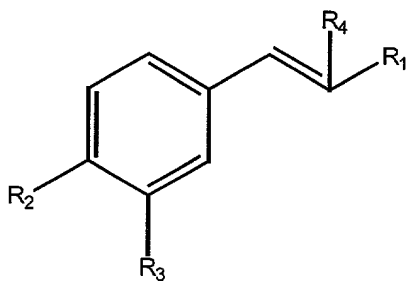
wherein  $R_1$  represents -CHO,  $R_2$  represents -H, -OH or an organic substituent containing from 1 to 10 carbon atoms, and  $R_3$  represents -H, a methoxy group or organic substituent containing from 1 to 10 carbon atoms, and  $R_4$  represents -H, or an organic substituent containing from 1 to 10 carbon atoms.

17. (Deleted) The method according to Claim 16, wherein said aromatic aldehyde is selected from the group consisting of cinnamic aldehyde, alpha-hexyl cinnamic aldehyde and coniferyl aldehyde.



Serial No.: 10/007,657  
Filed: November 13, 2001

18. (Deleted) A composition comprising a balsam in a formulation which is nonphytotoxic to plants, wherein the concentration of said balsam is sufficient to provide a mean disease control of 70%.
19. (Deleted) The composition according to Claim 18, wherein said composition further comprises one or more aromatic aldehydes having the formula



- wherein  $R_1$  represents  $-CHO$ ,  $R_2$  represents  $-H$ ,  $-OH$  or an organic substituent containing from 1 to 10 carbon atoms, and  $R_3$  represents  $-H$ , a methoxy group or organic substituent containing from 1 to 10 carbon atoms, and  $R_4$  represents  $-H$ , or an organic substituent containing from 1 to 10 carbon atoms.
20. (Deleted) The composition according to Claim 19, wherein said aromatic aldehydes is selected from the group consisting of cinnamic aldehyde, alpha-hexyl cinnamic aldehyde and coniferyl aldehyde.
21. (Deleted) The composition according to Claim 16, wherein said formulation is an emulsion.
22. (New) The method according to claim 7, wherein said pathological microorganisms are selected from the group consisting of soil-borne pathogens.

Serial No.: 10/007,657  
Filed: November 13, 2001

23. (New) The method according to claim 7, wherein said pathological microorganisms are selected from the group consisting of thrips, aphids, spider mites, arachnids, nematodes, and leafhoppers.
24. (New) The method according to claim 7, wherein said administering to said plant consists of application by foliar spray.
25. (New) The method according to Claim 15 wherein said surfactant is Tween 80 or saponin.
26. (New) A method for providing a susceptible plant with sustained resistance to pathological microorganisms, said method comprising:  
administering to said plant a nonphytotoxic composition comprising one or more aromatic aldehydes selected from the group consisting of cinnamic aldehyde, alpha-hexyl cinnamic aldehyde,  $\alpha$ -amyl cinnamic aldehyde, and coniferyl aldehyde, wherein said composition is free of antioxidants other than said at one or more aldehyde.
27. (New) The method according to Claim 26, wherein said aromatic aldehyde is microencapsulated in a polymer.
28. (New) The method according to Claim 26, wherein said polymer is beeswax or carnauba wax.
29. (New) The method according to Claim 26, wherein said pathological organisms are selected from the group consisting of aphids, thrips, spider mites, arachnids, nematodes, and leafhoppers.
30. (New) The method according to Claim 26, wherein said green plant is selected from the group consisting of a rose, a grape, a tomato, and a bell pepper.

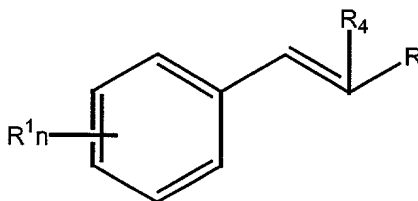
**Serial No.:** 10/007,657  
**Filed:** November 13, 2001

31. (New) The method according to Claim 26, wherein said composition further comprises a surfactant.
32. (New) The method according to Claim 31 wherein said surfactant is Tween 80 or saponin.
33. (New) The method according to Claim 26, wherein said composition further comprises a salt of a polyprotic acid.
34. (New) The method according to Claim 33, wherein said salt of a polyprotic acid is sodium bicarbonate.

## Appendix B

### PENDING CLAIMS

2. (Amended) A method for providing a susceptible plant with sustained resistance to pathological microorganisms, said method comprising:  
administering to said plant a nonphytotoxic composition comprising at least one aromatic compound having the formula



- wherein R represents -CHO, -CH<sub>2</sub>OH, -COOH, or -COOR<sub>5</sub>; n is an integer from 0 to 3; each R<sup>1</sup> represents -OH, or an organic substituent containing from 1 to 10 carbon atoms and from 0 to 5 heteroatoms, wherein the total number of carbon and heteroatoms in all R<sup>1</sup> substituents of said compound is no more than 15; and R<sub>4</sub> represents -H or an organic constituent containing from 1 to 10 carbon atoms; and R<sub>5</sub> represent an organic substituent containing from 1 to 10 carbon atoms and from 0 to 5 heteroatoms.
6. (Amended) The method according to Claim 2, wherein said aromatic compound is one or more aromatic aldehydes selected from the group consisting of cinnamic aldehyde, alpha-hexyl cinnamic aldehyde, α-amyl cinnamic aldehyde, and coniferyl aldehyde.
7. The method according to Claim 6, wherein said aromatic aldehyde is microencapsulated in a polymer.
8. The method according to Claim 7, wherein said polymer is beeswax or carnauba wax.

**Serial No.:** 10/007,657  
**Filed:** November 13, 2001

15. (Amended) The method according to Claim 2, wherein said composition comprises a surfactant.
22. (New) The method according to claim 7, wherein said pathological microorganisms are selected from the group consisting of soil-borne pathogens.
23. (New) The method according to claim 7, wherein said pathological microorganisms are selected from the group consisting of thrips, aphids, spider mites, arachnids, nematodes, and leafhoppers.
24. (New) The method according to claim 7, wherein said administering to said plant consists of application by foliar spray.
25. (New) The method according to Claim 15 wherein said surfactant is Tween 80 or saponin.
26. (New) A method for providing a susceptible plant with sustained resistance to pathological microorganisms, said method comprising:  
administering to said plant a nonphytotoxic composition comprising one or more aromatic aldehydes selected from the group consisting of cinnamic aldehyde, alpha-hexyl cinnamic aldehyde,  $\alpha$ -amyl cinnamic aldehyde, and coniferyl aldehyde, wherein said composition is free of antioxidants other than said at one or more aldehyde.
27. (New) The method according to Claim 26, wherein said aromatic aldehyde is microencapsulated in a polymer.
28. (New) The method according to Claim 26, wherein said polymer is beeswax or carnauba wax.

**Serial No.:** 10/007,657  
**Filed:** November 13, 2001

29. (New) The method according to Claim 26, wherein said pathological organisms are selected from the group consisting of aphids, thrips, spider mites, arachnids, nematodes, and leafhoppers.
30. (New) The method according to Claim 26, wherein said green plant is selected from the group consisting of a rose, a grape, a tomato, and a bell pepper.
31. (New) The method according to Claim 26, wherein said composition further comprises a surfactant.
32. (New) The method according to Claim 31 wherein said surfactant is Tween 80 or saponin.
33. (New) The method according to Claim 26, wherein said composition further comprises a salt of a polyprotic acid.
34. (New) The method according to Claim 33, wherein said salt of a polyprotic acid is sodium bicarbonate.